Association of Night Shift Work and Glycemic Control on Worker with Type 2 Diabetes Mellitus = Hubungan Kerja Shift Malam dengan Kontrol Glikemik pada Pekerja dengan Diabetes Mellitus Tipe 2: Laporan Kasus Berbasis Bukti

Fitria Nanda Saputri, author

Abstrak

Latar belakang Diabetes Mellitus (DM) merupakan salah satu masalah kesehatan utama di negara berkembang maupun negara maju.1 Pada tahun 2007, sekitar 23,6 juta orang Amerika menderita DM, dimana sebagian besar adalah pekerja.2 Penelitian oleh Poulsen (2014) menemukan bahwa 3,5% petugas kesehatan menderita DM selama periode pengamatan 7 tahun.3 Informasi mengenai dampak kerja shift terhadap kontrol glikemik pada pada pekerja yang memiliki DM tipe 2 masih belum banyak diketahui. Metode Kasus wanita berusia 52 tahun bekerja sebagai perawat di rumah sakit, mengikuti jadwal shift malam dan telah didiagnosis DM tipe 2 sejak 7 tahun lalu. Pencarian literatur dilakukan melalui pencarian elektronik (PubMed dan ProQuest) serta hand searching dengan kata kunci “kontrol glukosa darah”, “diabetes mellitus tipe 2”, “kerja shift” dan “kerja shift malam” yang memenuhi kriteria inklusi dan eksklusi. Hasil Hasil pencarian didapatkan 92 studi dan 3 studi yang relevan ditemukan dengan desain potong lintang. Studi oleh Manodpitipong (2017) menunjukkan bahwa kerja shift malam dikaitkan dengan HbA1c yang lebih tinggi (p = 0,044) dibandingkan dengan kerja siang hari. Studi oleh Chalernvanichakorn (2008) memberikan hasil kontrol glikemik yang baik secara signifikan lebih tinggi pada pekerja harian dibandingkan pekerja shift (28,3% vs 15,8%) dengan p = 0,02. Studi oleh Ghazawy (2013) menunjukkan bahwa HbA1c lebih tinggi di antara pekerja dengan diabetes yang melakukan kerja shift dibandingkan dengan pekerja yang hanya bekerja siang hari (p = 0,01). Kerja shift sendiri berpengaruh signifikan terhadap pengendalian diabetes (p = 0,04), dengan OR = 3,83 (1,02 – 14,34). Kesimpulan Bukti penelitian menunjukkan adanya hubungan antara kerja shift malam dengan kontrol glikemik yang buruk pada pekerja dengan DM tipe 2. Pekerja shift malam berisiko 2-3 kali memiliki kontrol glikemik yang buruk daripada pekerja non-shift. Bukti yang ditemukan dalam studi Manodpitipong dan Chalernvanichakorn dapat diterapkan pada pasien ini karena karakteristik subjek penelitian yang sama.
.....Background Diabetes Mellitus (DM) is considered to be one of a major problem in both developing and industrialized countries.1 As of 2007, approximately 23.6 million Americans have diabetes, most of whom are or wish to be participating members of the workforce.2 Research by Poulsen et al., (2014) found that 3.5% of health workers had diabetes during the 7-year observation period.3 A person with diabetes should be individually assessed to determine whether or not that person can safely and effectively perform the particular duties of the job in question.2 Shift work is considered to be disruptive to normal diurnal biological rhythms and has been associated with many health problems.4 Observational studies revealed that night-shift work is associated with increased risk of prevalent diabetes and incident diabetes.7 Information regarding the impact of shift work on blood glucose control or glycemic state in workers who have a history of type 2 diabetes is still not widely known. Method The case is about a 52-year-old female who worked as a nurse in non-intensive ward of government hospital and performed night shift work. She has been diagnosed with type 2 Diabetes Mellitus for seven years . A literature search was conducted through PubMed and

ProQuest and also performed with the hand searching method. The inclusion criteria of this search strategy were systematic review, cohort study, worker with type 2 DM, shift work, blood glucose control and glycemic control. The exclussion criteria were articles not in english and inaccessible full text article. Then, they were critically appraised based on Center of Evidence- Based Medicine, Oxford University, Critical Appraisal for Etiology. Result Three relevant studies were found through literature searching and all of those studies were cross sectional design. The first study by Manodpitipong, et al.(2017) showed that night shift work was associated with significantly higher haemoglobin A1c ($p = 0.044$) compared with day work. While there were no differences between unemployed participants and day workers ($p = 0.572$). The second study conducted by Chalernvanichakorn, et al.(2008) give result that good glycemic control was significantly higher in day workers versus shift workers (28.3% vs 15.8%) with $p = 0.02$. A higher proportion of shift workers had hypoglycemic symptoms compared to day workers (42.5% vs. 26.7%). The third study by Ghazawy, et al.(2013) showed that HbA1c was significant higher levels among diabetic shift workers compared to diabetic day-time workers ($p=0.01$), where mean of current shift workers and former shift workers were 7.8 ± 1.9 and 8.4 ± 2.6, compared to 6.3 ± 1.1. Shift work itself has a significant effect on control of diabetes ($p = 0.04$), with an OR = 3.83 (1.02 – 14.34), whereas age, duration of diabetes, BMI and waist circumference had no significant effect. Conclusion The research evidence found from the three studies above shows that there is association between night shift work and poor glycemic control in workers with type 2 DM. But the causation effect between the two variables cannot be determined yet, because there are many confounding factors that influence it. Night shift workers are two to three times more likely to have poor glycemic control than non-shift workers. The evidence found in the two study (Manodpitipong and Chalernvanichakorn) can be applied to our patient because of the same characteristic: female, diabetic worker, involved in night shift work. For future studies, cohort research should be conducted to find causality between shift work and glycemic control. Recommendation to our patient is to pay more attention to diet and adhere to treatment. It is necessary to inform the doctor that she is involved in shift work so that the doctor will provide a suitable regimen and diet for the patient.